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DATE OF MAILING: WASHINGTON, DISTRICT  
OF COLUMBIA, VA 20231

EXAMINER
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ART UNIT	PAPER NUMBER
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DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

## Office Action Summary

Application No.  
**08/935,365**

Applicant  
**Roberts et al.**

Examiner  
**Marianne S. Ocampo**

Group Art Unit  
**1723**



☒ Responsive to communication(s) filed on Oct 4, 1999

☒ This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

### Disposition of Claims

☒ Claim(s) 1-28 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-7, 18, 19, and 28 is/are rejected.

Claim(s) \_\_\_\_\_ is/are objected to.

☒ Claims 8-17 and 20-27 are subject to restriction or election requirement.

### Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All ☐ Some\* ☐ None ☐ of the CERTIFIED copies of the priority documents have been received.

received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

### Attachment(s)

Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 9, 10 & 16

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit:

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1 - 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The following gives an explanation for the above rejection:

a. Claim 1 recites the limitation "extends substantially the length of a filter media supported thereby" in lines 12 - 13. The claim is referring only to a subcombination, being that of an underdrain block, without a filter media bed. It is unclear and confusing as to whether the applicant want to include a filter media bed as an additional structural limitation or not in this claim. If the applicant only meant to claim the underdrain block as a subcombination, then the recitation of a dimension for the underdrain block in terms of a filter media bed is improper, since it does not exist in the subcombination.

b. Claim 4, a dependent claim of claim 1, recites the limitation " the underdrain block extends the length of the filter media" in lines 2 - 3. Since claim 1 does not positively recite

Art Unit:

the filter media bed in combination with an underdrain block, and only recites the subcombination of an underdrain block, claim 4 is also indefinite.

c. Claims 2 - 3 and 5 - 7 are dependent claims of independent claim 1, and thus suffer the same defects as they depend therefrom.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit:

4. Claims 1 - 7 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al. (U.S. 5,489,388).

Brown et al. (388) disclose a gravity filtration system or apparatus (10) comprising a lateral underdrain block (12, 146), wherein the underdrain block (12, 146) is supporting a filter media bed (14). Brown et al. disclose the underdrain block (12, 146) having an upper wall (148), side walls (154), and a lower wall (150), at least one lateral member (internal walls, 154) within said underdrain block (12, 146) between said upper or top wall (148) and lower or bottom wall (150), and further comprising at least two chambers (conduits, 156 & 158) within the underdrain block (12, 146), wherein the chambers (36, 38, 156, 158) are defined by the lateral member (154). Brown et al. also disclose the underdrain block (12, 146) having a plurality of upper orifices (apertures, 170) in the upper wall (148) of the block (12, 146), and a plurality of internal orifices in the lateral members (154), whereby the underdrain block (12, 146) is substantially greater in longitudinal length than a longitudinal distance between said upper orifices (170), as seen in figure 11. Although Brown does not disclose the underdrain block is "jointless" and extending substantially the length of the filter media bed it supports, it is well-known in the art and obvious that underdrain blocks (having short or long lengths) are manufactured without joints (jointless), and joints are used only to connect small "modular" units to make a long underdrain blocks. These blocks may be joined by joints only if the filter bed it needs to support is longer than the available underdrain blocks. However, it would be an obvious modification to

Art Unit:

manufacture or extrude one modular underdrain block in various lengths and sizes, including those longer than 2 - 4 feet long, such that it extends substantially the entire length of the filter media bed it is supporting, depending on the manufacturer's design, manufacturing costs and availability of materials (claims 1 and 4). Brown et al. also disclose the block (12, 146) comprising a conduit (22, 24) in the lower wall (18, 150) for an effluent to flow out of the underdrain block (12, 146), and for water and air to flow into it (claim 2), as in cols. 9 - 10. Brown et al. further disclose the underdrain block (12, 146) comprising a passageway (36, 38, 156, 158) between an end of at least one chamber (36, 38, 156, 158) of the block (12, 146), and a wall sleeve (20), wherein the wall sleeve (20) provides a conduit (20, 22, 24) for the effluent to flow out of and for water and air to flow into the underdrain block (12, 146), as stated in column 4, lines 63 - 68, and column 5, lines 44 - 51 (claim 3).

Furthermore, Brown et al. disclose the orifices (170) of the upper wall (148) extending in the same direction as the orifices formed on the lateral (horizontal) wall (154), as in fig. 11 (claim 5), and disclose using (testing) the lateral underdrain block (12, 146) having a longitudinal length of 4 ft. - 40 ft., as given in examples I - II and in table I, wherein said underdrain block (12, 146) is at least 10 feet (claim 6), and/or at least 20 feet (claim 7). Lastly, Brown et al. disclose an underdrain block (146) comprising a plurality of walls (148, 154, 150) integrally connected, and at least one chamber (156, 158) within the block (146) defined by the walls, wherein the block

Art Unit:

(146) is jointless (no joints), as in fig. 11, and having a length between 4 - 40 ft, as in table I and examples I - II (claim 28).

5. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al. (U.S. 5,489,388) in view of Brown et al. (U.S. 5,269,920).

6. Brown et al. (U.S. 5,489,388) has been expanded above. Brown et al. fail to disclose an underdrain block comprising three lateral members within said underdrain block, in which said three lateral members comprising two vertical lateral members and one horizontal lateral member, wherein said vertical lateral members dividing the interior of said underdrain blocks into three sections of approximately equal sizes, and said horizontal lateral member intersecting said vertical lateral members such that said horizontal lateral member further divides said interior into six chambers, which comprise of three upper chambers of approximately equal sizes, and three lower chambers, also of approximately equal sizes being located above and below said horizontal lateral member, respectively. Brown et al. (U.S. 5,269,920) teach an underdrain block (16) comprising five lateral members (internal walls, 40), wherein 4 of said lateral members (40) are vertical, or at least substantially vertical lateral members and one horizontal lateral member, as seen in figure 1. Brown et al. (920) teach said horizontal and vertical lateral members or internal walls (40) dividing the interior of said underdrain block (16) into 6 chambers or conduits (42, 34), wherein three of said six chambers are upper chambers (34) above said horizontal lateral member, and the

Art Unit:

other three chambers (42) are below said horizontal lateral member, wherein at least two of said lower and upper chambers (42, 34), respectively, are approximately equal in dimension, as seen in figure 1. It is also obvious to divide said interior of said underdrain block (16) into chambers of approximately equal sizes, according to the design and desired effect of said design on the backwash flow of water/air into said underdrain block (instant claim 18). It is considered that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the underdrain block of Brown et al. (388) in lieu of the underdrain block of Brown et al. (920) in order to provide a plurality of interconnecting chambers or conduits to evenly distribute and mix the back washing water and air passing through said underdrain block before introduction to the filter media bed for an improved scouring and cleaning of the filter media, as stated in column 4, lines 37 - 45.

7. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al. (388) and Brown et al. (920), as applied to claim 18 above, and further in view of Eades et al. (U.S. 4,579,659).

8. Brown et al. (388), as modified by Brown et al. (920), have been expanded above. Brown et al. (388), as modified by Brown et al. (920), fail to disclose a plurality of air nozzles locate in each section of the underdrain, wherein each air nozzle is located at different lengths or points along the length of said underdrain, and furthermore, said air nozzle comprising a pipe having a



Art Unit:

closed end and an open end, wherein said open end is situated in said upper chamber substantially near said horizontal lateral member, and said pipe is extending from said lower wall of said underdrain through an internal orifice into said upper chamber, having a vertical slot proximate said closed end of said pipe and situated in the lower chamber substantially near said lower wall, and having a hole situated in said lower chamber substantially near said horizontal lateral member. Eades et al. (4,579,659) teach a gravity filter including an underdrain (12) having a plurality of air nozzles (20) located in each section of said underdrain (12), wherein each nozzle (20) is located at different lengths or points along the length of said underdrain (12), as seen in figures 1-2. 12:

Eades et al. (659) teach each of said nozzles (20) comprising a pipe or tube sheet (21) having a closed end (34) and an open end (35), wherein said open end (35) is situated substantially near a horizontal lateral member (21), and having a plurality of slots (38) proximate said closed end (34). Although Eades et al. do not teach said slot (38) is vertical or horizontal, it is obvious and well known that the orientation of said slots (38) is arbitrary depending on the whim or design specification of the manufacturer of said air nozzle pipes. It is also well-known in the art that the location of said closed end and open end of air nozzle pipes can be below or above a horizontal lateral member of an underdrain assembly or block, in other words, said closed and open ends can be situated in the lower chamber and upper chamber, respectively, depending on the desired effect or distribution of air within said underdrain block (instant claim 19). It is considered that it would have been obvious to one of ordinary skill in the art to add the

Art Unit:

embodiments of the underdrain assembly taught by Eades et al. (659) to that underdrain block of Brown et al. (388), as modified by Brown et al. (920), in order to provide a uniform air flow distribution within said underdrain system, as stated in column 1, lines 56 - 59.

*Response to Amendment*

9. In view of the amendments filed on 8-17-99, the examiner still find the claims not novel and unpatentable, and the arguments unpersuasive. In regards to the argument that the applicant's underdrain is jointless and integral forming a block of a length of at least 5 feet, it would be an obvious optimization step to manufacture longer blocks in order to support longer filter beds based on the availability of materials and design choice of the manufacturer, without necessitating the use of joints. It is obvious that connecting joints may or may not be used, depending on the size of the filter media bed and the available underdrain blocks to support them. If smaller filter beds are used, for example, having the length of 2 - 4 feet in the treatment process, smaller underdrain blocks of 2 - 4 feet long would be the obvious choice of underdrain blocks to use.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit:

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### *Conclusion*

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne S. Ocampo, whose telephone number is (703) 305-1039. The examiner can normally be reached on Monday - Friday from approximately 7:00AM - 3:30PM.

12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker, can be reached on (703) 308-0457.

13. The fax phone number for **Unofficial** faxes (i.e. faxes not to be entered, drafts) for


Art Unit:

Technology Center 1700 is **(703) 305-3602**. The fax number for **Official** faxes (i.e. faxes to become part of the file history) for this Center is **(703) 305-3599**. When filing a fax in Technology Center 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with the PTO that are not for entry into the file of the application. This will expedite processing of your papers.

14. Any inquiry of a general nature or relating to the status for this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.

M. S. O.

October 22, 1999

  
W. L. WALKER  
PRIMARY EXAMINER  
GROUP 1300